2

Docket No.: 495152000111

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

In the claims:

Claims 1-109 (Canceled)

110. (Currently Amended) A method for plating a film to a desired thickness on a surface of a substrate, comprising:

providing a plurality of stacked plating modules and a substrate transferring mechanism; picking up a substrate from a substrate holder with the substrate transferring mechanism;

loading the substrate into a first one of the stacked plating modules with the substrate transferring mechanism;

positioning the substrate within a bath in the first one of the stacked plating modules, the bath having a first wall and at least a second wall, wherein the first wall is adjacent to a first portion of the substrate and the at least second wall is adjacent to at least a second portion of the substrate when the substrate is positioned within the bath; and

plating a film on the substrate in the first one of the stacked plating modules.; and returning the substrate to said substrate holder with the substrate transferring mechanism.

- 111. (Previously Presented) The method of claim 110, further comprising:
- after plating the film on the substrate, drying the substrate by at least one of spinning the substrate or directing drying gas onto the substrate.
- 112. (Previously Presented) The method of claim 110, wherein at least a second one of the plurality of plating modules is a cleaning module, the method further comprising:

after plating the film on the substrate, picking up the substrate with the substrate transferring mechanism from the first one of the stacked plating modules;

Docket No.: 495152000111

Application No.: 09/837,911

3

placing the substrate into the second one of the stacked plating modules for cleaning; cleaning the substrate in the second one of the stacked plating modules; and

drying the substrate in the second one of the stacked plating modules.

113. (Currently Amended) An automated tool for plating a film on a substrate, comprising:

at least two plating baths positioned in a stacked relationship, wherein each of the at least two plating baths includes a first wall and at least a second wall, wherein the first wall is adjacent to a first portion of the substrate and the at least second wall is adjacent to at least a second portion of the substrate when the substrate is positioned within the bath;

at least one substrate holder;

a substrate transferring mechanism;

a frame supporting said plating baths, said substrate holder and said substrate transferring mechanism; and

a control system in communication with said substrate transferring mechanism, substrate holder and said plating baths configured to continuously perform uniform film deposition on the substrate.

- 114. (Previously Presented) The automated tool of claim 113, further comprising: at least two cleaning modules positioned in a stacked relationship with said at least two plating baths.
- 115. (Previously Presented) The automated tool of claim 113, wherein the substrate transferring mechanism includes a telescoping member movable with three degrees of freedom.
- 116. (Previously Presented) The automated tool of claim 113, wherein said substrate transferring mechanism is mounted on a bottom portion of said frame.
- 117. (Previously Presented) The automated tool of claim 113, wherein said substrate transferring mechanism is mounted on a top portion of said frame.

4

Docket No.: 495152000111

- 118. (Previously Presented) The automated tool of claim 113, further comprising at least a second set of plating baths positioned in a stacked relationship and at least two additional cleaning modules positioned in a stacked relationship with said second set of plating baths.
 - 119. (New) The method of claim 110, wherein plating a film on the substrate comprises:

flowing an electrolyte in a gap formed between the first wall and the first portion of the substrate to plate a film on the first portion of the substrate; and

flowing the electrolyte in a gap formed between the at least second wall and the at least second portion of the substrate to plate a film on the at least second portion of the substrate.

120. (New) The method of claim 119, further comprising:

supplying the electrolyte to the bath using a plumbing box.

121. (New) The method of claim 120, wherein the plumbing box includes:

a pump;

valves;

filters; and

plumbing connections.

122. (New) The method of claim 119, wherein plating a film on the substrate comprises:

applying a charge to the electrolyte flowing in the gap formed between the first wall and the first portion of the substrate using a first anode adjacent to the first wall; and

applying a charge to the electrolyte flowing in the gap formed between the at least second wall and the at least second portion of the substrate using at least a second anode adjacent to the at least second wall.

- 123. (New) The method of claim 122, wherein the first anode and the at least second anode are connected to a power supply.
 - 124. (New) The method of claim 110, wherein plating a film on the substrate comprises:

5

Docket No.: 495152000111

plating a seed layer on a dielectric layer on the substrate in the first one of the stacked plating modules.

125. (New) The method of claim 124, further comprising:

after plating the seed layer on the dielectric layer on the substrate, transferring the substrate into at least a second one of the plurality of plating modules; and

plating a metal film on the seed layer in the at least second one of the plurality of plating modules.

- 126. (New). The method of claim 125, wherein the first one of the stacked plating modules and the at least second one of the plurality of plating modules use different electrolyte or plating hardware.
 - 127. (New) The method of claim 110, further comprising: rotating the substrate within the bath.
 - 128. (New) The method of claim 110, further comprising:

moving the substrate holder in a vertical direction to match the vertical position of the substrate transferring mechanism.

- 129. (New) The method of claim 110, further comprising:
 moving the substrate transferring mechanism in a horizontal direction.
- 130. (New) The automated tool of claim 113, further comprising:
- a first anode adjacent to the first wall; and

at least a second anode adjacent to the at least second wall.

- 131. (New) The automated tool of claim 130, further comprising:
- a power supply connected to the first anode and the at least second anode.
- 132. (New) The automated tool of claim 131, wherein the power supply comprises:
- a first power supply connected to the first anode; and
- at least a second power supply connected to the at least second anode.

6

Docket No.: 495152000111

133. (New) The automated tool of claim 113, further comprising:

an electrolyte tank; and

a plumbing box connected to the electrolyte tank and to the at least two plating baths to supply electrolyte to the at least two plating baths from the electrolyte tank.

134. (New) The automated tool of claim 133, wherein the plumbing box includes:

a pump;

valves;

filters; and

plumbing connections.

- 135. (New) The automated tool of claim 133, wherein the electrolyte flows in a gap formed between the first wall and the first portion of the substrate to plate a film on the first portion of the substrate, and wherein the electrolyte flows in a gap formed between the at least second wall and the at least second portion of the substrate to plate a film on the at least portion of the substrate.
- 136. (New) The automated tool of claim 133, wherein the electrolyte tank includes a temperature control.
 - 137. (New) The automated tool of claim 113, further comprising:
 - at least two drivers, wherein a driver rotates or oscillates the substrate over a plating bath.
- 138. (New) The automated tool of claim 113, wherein the at least two plating baths includes:
 - a first plating bath to plate a seed layer on a dielectric layer on the substrate; and
- a second plating bath to plate a metal film on the seed layer, wherein the substrate transferring mechanism transfers the substrate from the first plating bath to the second plating bath after the seed layer is plated on the dielectric layer on the substrate.
- 139. (New) The automated tool of claim 138, wherein the first plating bath and the second plating bath use different electrolyte or plating hardware.

7

Docket No.: 495152000111

- 140. (New) The automated tool of claim 113, wherein the substrate holder moves in a vertical direction.
- 141. (New) The automated tool of claim 113, wherein the substrate transferring mechanism moves in a horizontal direction.
 - 142. (New) A tool for plating a metal film on a substrate, comprising:

a first plating module having a bath divided by a first wall and at least a second wall, wherein the first wall is adjacent to a first portion of the substrate and the at least second wall is adjacent to at least a second portion of the substrate when the substrate is positioned within the bath;

at least a second plating module positioned in a stacked relationship with the first plating module;

a substrate holder; and

- a substrate transferring mechanism that transfers the substrate between the substrate holder, the first plating module, and the at least second plating module.
- 143. (New) The tool of claim 142, wherein the first plating module includes a driver to rotate or oscillate the substrate over the bath.
- 144. (New) The tool of claim 142, wherein the substrate transferring mechanism transfers the substrate into the first plating module to plate a seed layer on a dielectric layer on the substrate, then transfers the substrate into the at least second plating module to plate a metal film layer on the seed layer.
- 145. (New) The tool of claim 144, wherein the first plating module and the at least second plating module use different electrolyte or plating hardware.
 - 146. (New) The tool of claim 142, further comprising:
- a first cleaning module, wherein the substrate transferring mechanism transfers the substrate from the first plating module or the second plating module to the first cleaning module to clean the substrate.

8

Docket No.: 495152000111

- 147. (New) The tool of claim 146, wherein the first cleaning module is positioned in a stacked relationship with the first plating module and the at least second plating module.
 - 148. (New) The tool of claim 146, further comprising:

at least a second cleaning module positioned in a stacked relationship with the first cleaning module, wherein the first cleaning module and the at least second cleaning module are positioned adjacent to the first plating module and the at least second plating module.

149. (New) The tool of claim 148, wherein the substrate transferring mechanism:

transfers a first substrate from the substrate holder to the first plating module to be plated,

transfers a second substrate from the substrate holder to the second plating module to be
plated,

after the first substrate is plated, transfers the first substrate from the first plating module to the first cleaning module to be cleaned, and

after the second substrate is cleaned, transfers the second substrate from the second plating module to the second cleaning module to be cleaned.

- 150. (New) The tool of claim 149, wherein the substrate transferring mechanism moves in a vertical direction to move between the first plating module and the at least second plating module.
- 151. (New) The tool of claim 150, wherein the substrate holder moves in a vertical direction to match the vertical position of the substrate transferring mechanism.
- 152. (New) The tool of claim 149, wherein the substrate transferring mechanism moves in a horizontal direction to move between the first plating module and the first cleaning module.
 - 153. (New) The tool of claim 142, further comprising:
 - a first anode adjacent to the first wall; and
 - at least a second anode adjacent to the at least second wall.
 - 154. (New) The tool of claim 153, further comprising:

 a power supply connected to the first anode and the at least second anode.

9

Docket No.: 495152000111

- 155. (New) The tool of claim 154, wherein the power supply comprises:
- a first power supply connected to the first anode; and
- at least a second power supply connected to the at least second anode.
- 156. (New) The tool of claim 142, further comprising:

an electrolyte tank; and

a plumbing box connected to the electrolyte tank and to the first plating module to supply electrolyte to the bath from the electrolyte tank.

157. (New) The tool of claim 156, wherein the plumbing box includes:

a pump;

valves:

filters; and

plumbing connections.

- 158. (New) The tool of claim 156, wherein the electrolyte flows in a gap formed between the first wall and the first portion of the substrate to plate a film on the first portion of the substrate, and wherein the electrolyte flows in a gap formed between the at least second wall and the at least second portion of the substrate to plate a film on the at least portion of the substrate.
- 159. (New) The tool of claim 156, wherein the electrolyte tank includes a temperature control.